

# **EPA Superfund Explanation of Significant Differences:**

**REICH FARMS  
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PLEASANT PLAINS, NJ  
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EPA 541-R98-136

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Attached for your review and concurrence, please find the Explanation of Significant Difference (ESD) to explain a modification to the remedy selected for contaminated ground water presented in the Reich Farm Superfund Site's (the Site) September 30, 1988 Record of Decision (ROD) and subsequent 1995 ESD.

The ROD called for extraction of the contaminated ground water, treatment via air stripping and carbon adsorption, and reinjection of the treated ground water to the aquifer. Information gathered and modeling performed since the issuance of the ROD indicated that the plume extended farther than previously expected. The findings show that the plume is being hydraulically controlled by the United Water of Toms River (UWTR) well field. An existing air stripper at the UWTR well field has been effectively treating volatile chemicals in the contaminated ground water since 1988.

The 1995 ESD allowed the use of the existing UWTR extraction and treatment system as the sole method of treating the Site's contaminated ground water. The treated ground water, after meeting all applicable safe drinking water standards, had been distributed through the municipal water supply. This ESD further modifies the remedy described in the 1995 ESD by requiring additional treatment of contaminated ground water through an activated carbon system. In addition, this ESD allows the treated water to be distributed as potable water supply, discharged to a designated recharge area, or discharged to the Toms River at the discretion of State and local authorities. The New Jersey Department of Environmental Protection (NJDEP) has concurred with the modifications described in this ESD.

My staff and I are available to discuss this matter further with you at your convenience.

Attachment

## EXPLANATION OF SIGNIFICANT DIFFERENCE

REICH FARM Superfund Site  
Dover Township, Ocean County, New Jersey

### INTRODUCTION

The purpose of this Explanation of Significant Difference (ESD) is to explain the United States Environmental Protection Agency's (EPA's) changes to the groundwater remedy selected in its September 30, 1988 Record of Decision (ROD) and the subsequent 1995 ESD for the Reich Farm Superfund Site (Site or Reich Farm Site). The ROD called for extraction of contaminated ground-water, treatment via air stripping and carbon adsorption, and reinjection of the treated ground-water. The ROD also called for remediation of the contaminated soil on-site through low temperature thermal desorption. The portion of the cleanup addressing the soil was not modified by the 1995 ESD.

In 1995, EPA modified the ROD by issuing an ESD. A proposed ESD was issued to the public in August 1995, and comments from the public were addressed during an August 16, 1995 public meeting. A responsiveness summary was prepared to address questions related to the modification. The majority of commentors supported the modification of the remedy as described in the 1995 ESD.

The selected remedy, as modified by the 1995 ESD, called for ground water extraction from existing public supply wells, and treatment of the contaminated ground water through an air stripper located at the United Water Toms River's (UWTR's) Parkway Well Field (Well Field) and distribution of the treated ground water to the municipal water supply. The modification to the remedy, described in the 1995 ESD, did not require the construction of a groundwater pump and treat system as called for in the original ROD.

The 1995 ESD also indicated that the Well Field treatment system would be monitored closely and upgraded, if necessary, to ensure that the public water supply meets all state and federal safe drinking water standards.

Currently, there are six wells (#22, #24, #26, #28, #29, and #44) in the Parkway Well Field that draw water from the Cohansey aquifer. In 1996, the New Jersey Department of Environmental Protection (NJDEP) and the New Jersey Department of Health and Senior Services (NJDHSS), as part of an intensive study of the Dover Township water supply, found additional low level chemical contamination in water from Well #26. The contaminants were identified as by products of an acrylonitrile/styrene reaction. It was also determined that these compounds were disposed of at the Reich Farm Site. As there are no existing state or federal drinking water standards for these compounds and very little is known on their toxicity, UWTR agreed, as a precautionary measure, to close the two wells (#26 and #28) that are capturing the Reich Farm ground water plume. When operating, Wells #26 and #28 have effectively protected the Well Field's remaining four Cohansey wells from contamination. Since Wells #26 and #28 were closed, the remainder of the Parkway Well Field's wells were closed to prevent the plume from spreading to them. Potable water was supplied from other well fields during this time period.

Due to public concerns in Dover Township regarding an apparent elevation in childhood cancer cases, and in recognition of the unknown toxicity of the recently identified compounds, EPA and the State agencies believe it prudent to be very conservative on environmental matters in the area. Therefore EPA has chosen to modify the remedy described in the 1995 ESD, so that the water from Wells #26 and #28 undergoes further treatment that includes an activated carbon system. The activated carbon system removes the recently identified compounds to below detectable levels. As Maximum Contaminant Levels. (MCLs) do not exist for the recently identified compounds, the activated carbon units will remain in operation until the concentrations of the recently identified compounds are no longer detected in ground water from the wells or are determined to be at an acceptable risk level in Wells #26, #28, and in the monitoring wells within the Site's ground water plume.

This ESD also allows the treated water to be distributed as potable water supply, discharged to a designated recharge area, or discharged to the Toms River at the discretion of the State and local authorities.

Groundwater from all other Well Field wells that are shown to have no detectable levels of the recently identified compounds, or are at acceptable risk levels and that meet all other state and federal drinking

water standards, will be available for use as potable water supply. Furthermore, if ground water from any other Well Field well is found to contain site-related contaminants at levels deemed to be unsafe, additional treatment as necessary will be provided to ensure compliance with all state and federal safe drinking water levels.

EPA issues this ESD in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9617(c), and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. §300.435(c)(2)(i).

#### Site Location, History, Contamination Problem, Selected Remedy

The Reich Farm property, which comprises part of the overall Site, is located on Lakewood Road in the Pleasant Plains section of Dover Township, New Jersey. The property encompasses three acres and is surrounded by commercial and residential areas.

In December 1971, approximately 4,500 drums containing wastes and 450 empty drums from Union Carbide Chemicals' (UCC's) Bound Brook chemical manufacturing facility were discovered at the Site. In 1972 and 1974, UCC removed the drums and some contaminated soil from the Site.

In 1974, the Dover Township Health Department (now the Ocean County Health Department) issued a zoning ordinance restricting private well use around the site due to contamination found in the ground water. Currently, all residences and businesses within the area affected by groundwater contamination associated with the Site are connected to the public water supply. The public water supply has continuously met the federal and state safe drinking water standards.

In September 1983, EPA included the Reich Farm Site on its National Priorities List of Superfund Sites. In 1986, EPA commenced a Remedial Investigation and Feasibility Study (RI/FS) at the Site pursuant to CERCLA, in order to identify the nature and extent of contamination, and to develop cleanup alternatives. The RI confirmed the presence of groundwater and soil contamination. Contaminants identified in the groundwater and soil included 1,1,1,-trichloroethane, trichloroethene, and tetrachloroethylene. These chemicals are hazardous substances within the meaning of Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

On September 30, 1988, EPA issued a ROD that described the selected remedy for contaminated ground water and soil at the Reich Farm Site. The remedy called for the following:

- (1) additional groundwater and soil sampling to further delineate contamination related to the Site;
- (2) the excavation and treatment of contaminated soil by enhanced volatilization (thermal desorption) to remove volatile organic compounds (VOCs) and semivolatile organic compounds; and
- (3) the installation and operation of a groundwater pumping, treatment and reinjection system to remove VOCs from ground water at the Site.

#### POST-ROD ACTIVITIES

Following issuance of the ROD, EPA entered into a judicial Consent Decree with UCC. In September 1989 for performance of remedial design and construction of the selected remedy. The decree was entered by the federal district court of New Jersey on March 28, 1990.

Since the issuance of the ROD, UCC conducted two phases of pre-design activities. Phase I, which was conducted during 1990-1992 and summarized in the May 1992 Remedial Design/Remedial Action Report, included additional soil and groundwater sampling to further delineate the extent of contamination. Based on the sampling results, EPA concluded that: (1) groundwater contamination from the Site extends approximately one-mile south to the UWTR Parkway Well Field; and (2) the volume of contaminated soils at the Site was approximately 15,000 cubic yards (which significantly exceeded the initial estimated volume of 2,000 cubic yards).

Phase II activities included a thermal desorption treatability study for soil treatment. The thermal treatment of the 15,000 cubic yards of contaminated soil and restoration of the Reich Farm property was completed in May 1995. Phase II activities also included an evaluation of groundwater remedial design scenarios based upon the results of the Phase I sampling and modeling. This evaluation is presented in a February 1995 report entitled "Evaluation of Groundwater Remedial Design Scenarios."

The groundwater data collected and the modeling done during the two phases of pre-design work increased EPA's understanding of the movement and configuration of the groundwater contaminant plume. Based on this information, EPA issued the 1995 ESD.

In 1996 and 1997, additional information was collected regarding the contaminants comprising the plume. Additional site-related compounds were identified in two wells within the Well Field (Wells #26 and #28). The toxicity of these compounds, which were found in low part per billion concentrations, is unknown. As a conservative precautionary measure, NJDEP has recommended that at this time, the water from these wells should not be used as public water supply unless necessary to meet the public's demand for potable water. However, Wells #26 and #28 must continue to operate to ensure the protection of the remaining wells comprising the Well Field (Wells #22, #24, #29 and #44). In addition, Wells #26 and #28 must operate to facilitate the ultimate cleanup of the groundwater plume.

In May 1997, UCC added activated carbon treatment following the air stripper treatment system at the Parkway Well Field. Effluent sampling has shown that activated carbon effectively treats the recently identified compounds to non-detectable levels, at an analytical detection limit of 100 parts per trillion.

In addition, due to special public health concerns in Dover Township, EPA chose to evaluate several discharge options for the water from Wells #26 and #28. One option was determined to be immediately implementable. Currently, after treatment, the water from Wells #26 and #28 is discharged to the ground on an area close to the intersection of Route 9 and the Garden State Parkway (discharge area). To date, inspection of the discharge area indicates that the treated water is being adequately recharged to the aquifer. EPA and NJDEP will evaluate the discharge via confirmation of modeling and effects on the discharge area (i.e., recharge effectiveness) and on other public wells in the area to determine if a discharge line should be extended to the Toms River. At NJDEP's discretion, the treated water may also be used as a source of potable water.

Wells #22, #24, #29, and #44 were sampled and analyzed in May 1997. Samples collected from Wells #29 and #44 were found to contain levels of radiological contamination above the Federal safe drinking water levels (MCLs). NJDEP and EPA suspect this may be due to high levels of naturally occurring radium 224. The radiation is not due to any contamination at the Reich Farm Site. Compliance for radiological compounds is not based on samples collected from each individual well; rather, the MCLs must be met after the water from the respective wells is blended within the water distribution system. After blending, the water from the Parkway Well Field meets the MCLs for radiological compounds.

The data collected from Wells #22, #24, #29, and #44 demonstrate that the recently identified compounds have not been detected in these wells. The water from these wells meets all safe drinking water criteria prior to distribution; therefore, these wells are being used as public potable water supply. A contingency plan will be put in place to ensure that action is taken in the unlikely event that these wells become contaminated with site-related compounds at levels that would cause an unacceptable risk to human health.

#### DISCUSSION OF SIGNIFICANT DIFFERENCES

EPA, in recognition of the special health concerns in Dover Township, and after consultation with the NJDEP, modifies the groundwater remedy as described in the September 30, 1988 ROD and previously modified in the 1995 ESD as follows:

! The Well Field's groundwater treatment system has been upgraded by including an activated carbon system after air stripping to treat the entire groundwater plume emanating from the Reich Farm property.

! Rather than distributing the treated water to the municipal water supply (as presented in the 1995

ESD), this ESD` provides three options: recharge of the treated water to the aquifer via the discharge area; discharge of the treated water to the Toms River; or use of the treated water as a source of potable water. Prior to recharge, discharge, or use as a municipal water supply, sampling must confirm that the treated water meets all state and federal drinking water standards.

UCC has agreed to finance the operation and maintenance of the Well Field's treatment system pursuant to a private agreement with the UWTR. This agreement indicates that UCC will upgrade the treatment system, as necessary, to ensure that the public water supply meets the state and federal drinking water standards specified in the ROD. EPA will provide appropriate oversight of UCC activities.

#### SUPPORT AGENCY COMMENTS

The State of New Jersey concurs with this ESD which further modifies the remedy described in the 1995 ESD and the 1988 ROD.

#### PUBLIC PARTICIPATION ACTIVITIES

In accordance with the NCP, a formal public comment period is not required when issuing an ESD. However, public participation was incorporated into the ESD process to ensure that the concerns of the community and the general public were considered. The remedy described in this ESD was presented and discussed at a public meeting on April 2, 1997. Though not unanimous, the people who spoke at the meeting largely supported this ESD. Concerns generally regarded whether there would be enough water available during summer months and whether decisions were made based on health concerns, rather than commercial water needs.

This ESD and the documents that form the basis for the decision to alter the groundwater remedy will be incorporated into the Administrative Record maintained for the Site in accordance with Section 300.825(a)(2) of the NCP. The Administrative Record is available for review during business hours at the information repository in the Ocean County Public Library, 101 Washington Street, Toms River, New Jersey 08753 and at EPA Region II offices, 290 Broadway, New York, New York 10007-1866. In addition, EPA will announce the availability of the ESD in the Asbury Park Press.

#### AFFIRMATION OF STATUTORY DETERMINATIONS

EPA, after consultation with NJDEP and consideration of all public comments, is issuing this ESD. The remedy, as modified by this ESD, is as protective of human health and the environment as the ROD remedy.

The modified remedy complies with the federal and state drinking water standards as specified in the ROD. In addition, the modified remedy is technically feasible, and provides treatment that permanently and significantly reduces the toxicity, mobility and volume of hazardous substances in the groundwater.

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